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10/594,580	09/27/2006	Tomoyuki Kogo	129354	6802

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EXAMINER	
TRIEU, THAI BA	
ART UNIT	PAPER NUMBER
3748	

NOTIFICATION DATE	DELIVERY MODE
07/13/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/594,580	KOGO, TOMOYUKI	
	Examiner	Art Unit	
	THAI BA TRIEU	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The Office Action is in response to the Amendment filed on 06/21/2010.

Claims 1-9 were cancelled; and

Claims 14-17 were amended.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 10 and its dependent claims 11-13; Claim 14 and its dependent claims 15-17 and Claim 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically,

Claims 10, 14, and 18 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: structural connectivity of a controller unit and sensors with the engine system

The control unit receives signals from the sensors as inputs, such as pressure, temperatures, flow rate etc... and sends signals as outputs to actuate/adjust/regulate the injection controller and the turbine rotation controller.

Without the controller unit and sensors, the exhaust gas control apparatus and the exhaust gas control method does neither perform their function nor operate.

Claims 12 and 16, the recitation of ***'the injection controller deciding an amount of fuel injected by the after-injection based on temperature at which the catalyst is activated"*** renders the claims indefinite since it is not clear that how or by which way the after-injection can recognize the temperature at which the catalyst is to be activated in order to inject a suitable/desired amount of the fuel? Applicant is required to clarify or to revise the claimed features.

Note that if there is neither the controller unit nor sensors, the injection controller is unable to decide ***an amount of fuel injected by the after-injection based on temperature at which the catalyst is activated.***

Claims 13 and 17, the recitation of ***'the injection controller deciding an amount of fuel injected by the after-injection based on temperature at which the catalyst is activated"*** renders the claims indefinite since it is not clear that how or by which way the after-injection can recognize the temperature at which the catalyst is to be activated in order to inject a suitable/desired amount of the fuel? Applicant is required to clarify or to revise the claimed features.

Note that if there is neither the controller unit nor sensors, the injection controller is unable to decide ***an amount of fuel injected by the after-injection based on temperature at which the catalyst is activated.***

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 10-12, 14-16, and 18 are rejected under 35 U.S.C. 103(a) as best understood as being unpatentable over Saito Shinichi et al. (Pub. Number JP 2003-206722 A).

Regarding claims 10-12 and 14-16, Saito Shinichi discloses an exhaust gas control apparatus for an internal combustion engine/ an exhaust gas control method for an internal combustion engine (11), comprising:

a catalyst (22) which is provided in an exhaust passage of an internal combustion engine (11) and which has an oxidizing ability (See Figure 1);

a supercharger (18) which includes a turbine (20) that is rotated by exhaust gas, and a compressor (19) that is rotated in accordance with rotation of the turbine (20) and that performs supercharging;

a turbine rotation controller (24) that adjusts an amount of energy of the exhaust gas, which is used for rotating the turbine (19); and

an injection controller (Not shown) that performs after-injection for injecting fuel after main fuel injection in order to increase a temperature of the exhaust gas released from the internal combustion engine (11) and flowing in the catalyst (22),

wherein when a work amount of the compressor (19) is increased due to the after-injection performed by the injection controller (Not shown), the turbine rotation controller (24) decreases the amount of energy taken from the exhaust gas for rotating the turbine (20) in order to decrease the increase in the work amount due to the after injection to zero (See Figure 1, Claim 4, and Paragraphs [0029], [0031], [0043], [0044], and [0046]);

(Re. Cls. 11 and 15) wherein the turbine rotation controller (24) decreases the amount of energy of the exhaust gas, which is used for rotating the turbine (20), by increasing an opening amount of a variable nozzle provided in the supercharger and/or an opening amount of a wastegate valve (24) (See Figure 1);

(Re. Cl. 12) wherein the injection controller (Not Shown) decides an amount of fuel injected by the after-injection based on a temperature at which the catalyst is activated, and wherein the turbine rotation, controller increases the opening amount of the variable nozzle provided in the supercharger and/or the opening amount of the wastegate valve (24) as the amount of fuel injected by the after-injection increases (See Paragraphs [0008]-[0009]).

However, Saito Shinichi fails to disclose the position of the turbine being provided in the exhaust passage at a position upstream of the catalyst having an oxidizing ability, or the position of the catalyst having an oxidizing ability and being provided in the exhaust passage at a position downstream of the turbine.

It is the examiner' s position that the positioning of the turbine being in the exhaust passage at a position upstream of the catalyst having an oxidizing ability, or the positioning of the catalyst having an oxidizing ability and being provided in the exhaust passage at a position downstream of the turbine in the above claimed positions would have been obvious to one having ordinary skill in the art. More specifically, one having ordinary skill in the art would have positioned the turbine in the exhaust passage at a position upstream of the catalyst having an oxidizing ability, or the catalyst having an oxidizing ability in the exhaust passage at a position downstream of the turbine. The arrangement of these devices would have reduced exhaust emissions.

Regarding claim 18, Saito Shinichi discloses an exhaust gas control apparatus for an internal combustion engine, comprising:

a catalyst (22) which is provided in an exhaust passage of an internal combustion engine (11) and which has an oxidizing ability;

a supercharger (18) which includes a turbine (19) that is rotated by exhaust gas, and a compressor (20) that is rotated in accordance with rotation of the turbine and that performs supercharging;

turbine rotation energy amount adjusting means (24) for adjusting an amount of energy of the exhaust gas, which is used for rotating the turbine; and

after-injection performing means (Not shown) for performing after-injection for injecting fuel after main fuel injection in order to increase a temperature of the exhaust gas released from the internal combustion engine and flowing in the catalyst, wherein when a work amount of the compressor is increased due to the after-injection performed

by the after- injection performing means, the turbine rotation energy amount adjusting means (24) decreases the amount of energy taken from the exhaust gas for rotating the turbine in order to decrease the increase in the work amount due to the after injection to zero (See Figure 1, Claim 4, and Paragraphs [0029], [0031], [0043], [0044], and [0046]).

However, Saito Shinichi fails to disclose the position of the turbine being provided in the exhaust passage at a position upstream of the catalyst having an oxidizing ability, or the position of the catalyst having an oxidizing ability and being provided in the exhaust passage at a position downstream of the turbine.

It is the examiner' s position that the positioning of the turbine being in the exhaust passage at a position upstream of the catalyst having an oxidizing ability, or the positioning of the catalyst having an oxidizing ability and being provided in the exhaust passage at a position downstream of the turbine in the above claimed positions would have been obvious to one having ordinary skill in the art. More specifically, one having ordinary skill in the art would have positioned the turbine in the exhaust passage at a position upstream of the catalyst having an oxidizing ability, or the catalyst having an oxidizing ability in the exhaust passage at a position downstream of the turbine. The arrangement of these devices would have reduced exhaust emissions.

Claims 10-12, 14-16, and 18 are rejected under 35 U.S.C. 103(a) as best understood as being unpatentable over Saito Shinichi et al. (Pub. Number JP 2003-206722 A), in view of either Kobayashi Masaaki et al. (Pub. Number JP 2003-278536 A) or Nagae Masahiro (Pub. Number JP 2002-070536 A).

Regarding claims 10-12 and 14-16, Saito Shinichi discloses an exhaust gas control apparatus for an internal combustion engine/ an exhaust gas control method for an internal combustion engine (11), comprising:

a catalyst (21) which is provided in an exhaust passage of an internal combustion engine (11) (See Figure 1);

a supercharger (18) which includes a turbine (20) that is rotated by exhaust gas, and a compressor (19) that is rotated in accordance with rotation of the turbine (20) and that performs supercharging;

a turbine rotation controller (24) that adjusts an amount of energy of the exhaust gas, which is used for rotating the turbine (19); and

an injection controller (Not shown) that performs after-injection for injecting fuel after main fuel injection in order to increase a temperature of the exhaust gas released from the internal combustion engine (11) and flowing in the catalyst (22),

wherein when a work amount of the compressor (19) is increased due to the after-injection performed by the injection controller (Not shown), the turbine rotation controller (24) decreases the amount of energy taken from the exhaust gas for rotating the turbine (20) in order to decrease the increase in the work amount due to the after injection to zero (See Figure 1, Claim 4, and Paragraphs [0029], [0031], [0043], [0044], and [0046]);

(Re. Cls. 11 and 15) wherein the turbine rotation controller (24) decreases the amount of energy of the exhaust gas, which is used for rotating the turbine (20), by increasing an opening amount of a variable nozzle provided in the

supercharger and/or an opening amount of a wastegate valve (24) (See Figure 1);

(Re. Cl. 12) wherein the injection controller (Not Shown) decides an amount of fuel injected by the after-injection based on a temperature at which the catalyst is activated, and wherein the turbine rotation, controller increases the opening amount of the variable nozzle provided in the supercharger and/or the opening amount of the wastegate valve (24) as the amount of fuel injected by the after-injection increases (See Paragraphs [0008]-[0009]).

However, Saito Shinichi fails to disclose the catalyst having an oxidizing ability.

Kobayashi Masaaki/Nagae Masahiro teaches that it is conventional in the art of controlling exhaust emissions for turbocharged internal combustion engines, to utilize the catalyst having an oxidizing ability (20 of Kobayashi Masaaki; 22 of Nagae Masahiro) (See Figure 1 and Paragraphs [0058], [0071] of Kobayashi Masaaki; Figure 1, Abstract , Paragraph [0020] of Nagae Masahiro).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the catalyst having an oxidizing ability, as taught by Kobayashi Masaaki/Nagae Masahiro, to prevent /solve a clogging/accumulating of particulate matter or soot when the exhaust gas is to be discharged to the atmosphere.

Alternatively, the substitution of the catalyst having an oxidizing ability (20/22) as shown in Kobayashi Masaaki/Nagae Masahiro for a Diesel particulate filter (DPF) (21) would have been obvious to one of ordinary skill in the art at the time of the invention since the substitution of the catalyst having an oxidizing ability (20/22) would have

yielded predictable results, namely, to prevent/solve a clogging/accumulating of particulate matter or soot when the exhaust gas is to be discharged to the atmosphere. *KSR Int'l Co.* v. *Teleflex Inc.*, 82 USPQ2d 1395 (U.S. 2007).

Regarding claim 18, Saito Shinichi discloses an exhaust gas control apparatus for an internal combustion engine, comprising:

a catalyst (21) which is provided in an exhaust passage of an internal combustion engine (11);

a supercharger (18) which includes a turbine (19) that is rotated by exhaust gas, and a compressor (20) that is rotated in accordance with rotation of the turbine and that performs supercharging;

turbine rotation energy amount adjusting means (24) for adjusting an amount of energy of the exhaust gas, which is used for rotating the turbine; and

after-injection performing means (Not shown) for performing after-injection for injecting fuel after main fuel injection in order to increase a temperature of the exhaust gas released from the internal combustion engine and flowing in the catalyst, wherein when a work amount of the compressor is increased due to the after-injection performed by the after- injection performing means, the turbine rotation energy amount adjusting means (24) decreases the amount of energy taken from the exhaust gas for rotating the turbine in order to decrease the increase in the work amount due to the after injection to zero (See Figure 1, Claim 4, and Paragraphs [0029], [0031], [0043], [0044], and [0046]).

However, Saito Shinichi fails to disclose the catalyst having an oxidizing ability.

Kobayashi Masaaki/Nagae Masahiro teaches that it is conventional in the art of controlling exhaust emissions for turbocharged internal combustion engines, to utilize the catalyst having an oxidizing ability (20 of Kobayashi Masaaki; 22 of Nagae Masahiro) (See Figure 1 and Paragraphs [0058], [0071] of Kobayashi Masaaki; Figure 1, Abstract , Paragraph [0020] of Nagae Masahiro).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the catalyst having an oxidizing ability, as taught by Kobayashi Masaaki/Nagae Masahiro, to prevent /solve a clogging/accumulating of particulate matter or soot when the exhaust gas is to be discharged to the atmosphere.

Alternatively, the substitution of the catalyst having an oxidizing ability (20/22) as shown in Kobayashi Masaaki/Nagae Masahiro for a Diesel particulate filter (DPF) (21) would have been obvious to one of ordinary skill in the art at the time of the invention since the substitution of the catalyst having an oxidizing ability (20/22) would have yielded predictable results, namely, to prevent/solve a clogging/accumulating of particulate matter or soot when the exhaust gas is to be discharged to the atmosphere. *KSR Int'l Co.* v. *Teleflex Inc.*, 82 USPQ2d 1395 (U.S. 2007).

Claims 13 and 17 are rejected under 35 U.S.C. 103(a) as best understood as being unpatentable over Saito Shinichi et al. (Pub. Number JP 2003-206722 A), in view of either Kobayashi Masaaki et al. (Pub. Number JP 2003-278536 A) or Nagae Masahiro (Pub. Number JP 2002-070536 A); and further in view of Kawamoto Keiji (Pub. Number JP 2003-120353 A).

The modified Saito Shinichi device discloses the invention as recited above; however, fails to disclose at least one of intake air amount detector that detects an amount of intake air flowing through an intake passage of the internal combustion engine and intake air pressure detector that detects a pressure of the intake air is further provided in the intake passage of the internal combustion engine.

Kawamoto Keiji teaches that it is conventional in the art of controlling exhaust emissions for turbocharged internal combustion engines, to utilize at least one of intake air amount detector that detects an amount of intake air flowing through an intake passage of the internal combustion engine and intake air pressure detector (9) that detects a pressure of the intake air is further provided in the intake passage of the internal combustion engine (See Figure 1, Paragraphs [0021] and [0023]), and

wherein the turbine rotation controller (18) decreases the amount of energy of the exhaust gas, which is used for rotating the turbine, when a value detected by the intake air amount detector or the intake air pressure detector (via 9) after the after-injection is performed is higher than a value detected by the intake air amount detector or the intake air pressure detector before the after-injection is performed (See Figure 1, Abstract and Paragraph [0030]).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized at least one of intake air amount detector that detects an amount of intake air flowing through an intake passage of the internal combustion engine and intake air pressure detector that detects a pressure of the intake air is further provided in the intake passage of the internal combustion engine, as taught

by Kawamoto Keiji, to improve the performance efficiency of the exhaust gas purification for the modified Saito Shinichi device.

Response to Arguments

Applicant's arguments filed on 06/21/2010 have been fully considered but they are not persuasive. Accordingly, claims 10-18 are pending.

1. Oath/Declaration:

In response to the Applicant's arguments, on page 6, with respect to the objection to the Declaration have been fully considered and are persuasive. The objection to the Declaration has been withdrawn.

2. Rejection under 112 , second paragraph:

In response to Applicant's arguments, on page 6-7, applicant states that claims 10-18 are not indefinite, since the specification ***does not define the allegedly omitted features are essential***; ***interdependency between the elements of the claimed device or that all the elements operate concurrently toward the desired result*** is not essential to a patentable combination where the various elements do not function simultaneously, are not directly functionally related, do not directly inter-cooperate, and/or serve independent purposes; and indefiniteness of claim being determined in light of the entire specification , not reading claim in vacuum.

The examiner respectfully disagrees, since

First of all, applicant claims the engine system having a turbine rotation controller, an injector controller, and catalyst; however, applicant claims neither a controller (ECU) of the whole system nor sensors. Emphatically, if there is no connectivity of the controller (ECU) of the whole system and sensors, how the turbine rotation controller and injector controller do perform their functions. The controller the controller (ECU) of the whole system needs to receive parameters, such as engine operation, engine speed, temperature of intake air/exhaust gas/engine coolant, pressure of intake air/exhaust gas, etc..., as inputs and send signal as outputs to the turbine rotation controller and the injector controller to control/adjust/restrict the turbine rotation and fuel.

Secondly, as applicant argues that the specification ***does not define the allegedly omitted features are essential***; however without the controller unit (ECU) and sensors --the so-called omitted essential features --, turbine rotation controller and injector controller does neither perform their function nor operate.

Therefore, ***interdependency between the elements of the claimed device or that all the elements operate concurrently toward the desired result*** **is essential** to a patentable combination.

Finally, the examiner recognizes that the claims are interpreted in light of the specification; however limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Additionally, applicant claims the system which is not operated (i.e. turbine rotation controller and injector controller which do not perform their functions).

For these reasons, the rejection under 112, 2nd paragraph should be sustained.

3. Rejections under 35 U.S.C. 103(a):

a. Rejection of claims 10-12, 14-16 and 18 under 35 U.S.C. §103(a) over Saito et al., JP-A-2003-206722

In response to applicant's arguments on pages 7-8, applicant asserts that Saito fails to disclose all of the features of claims 10, 14 and 18 and has failed to provide a factual basis why one of ordinary skill in the art allegedly would have rearranged the components of Saito, claims 10, 14 and 18 would not have been obvious in view of Saito.

The examiner respectfully disagrees since the obviousness over Saito does provide a factual basis of reducing exhaust emissions with rearranging the components of Saito.

Emphatically, the catalyst having oxidizing ability and being rearranged at downstream of the turbine does not effect on the operation of the whole engine system and still performs its function of reducing exhaust emissions.

For theses reasons, the rejections of claims 10-12, 14-16 and 18 should be sustained.

b. Rejection of claims 10-12, 14-16 and 18 under 35 U.S.C. §103(a) over Saito in view of Kobayashi et al., JP-A-2003-278536, or Nagae, JP-A-2002-070536.

In response to applicant's arguments on pages 8-10, applicant asserts that as discussed in ***the present specification***, in an "internal combustion engine including a centrifugal supercharger, even when the temperature of the exhaust gas released from the internal combustion engine is increased, the energy of the exhaust gas is used for increasing a rotational speed of a turbine. Accordingly, **the temperature of the exhaust gas flowing from the NOx catalyst cannot be increased sufficiently**. Also, as the energy of the exhaust gas is used for increasing the rotational speed of the turbine and therefore the rotational speed of the turbine increases, a rotational speed of a compressor also increases and an amount of air taken in a cylinder increases. Accordingly, the intake air amount needs to be adjusted by decreasing an opening amount of an intake throttle valve. **As a result, "a pumping loss of the internal combustion engine increases, which causes deterioration of fuel efficiency."** ***Applicant's specification at page 2, line 28 - page 3, line 4***. Thus, the applied references fail to recognize a problem in the prior art. "In order to address this problem, a technology is proposed, in which a variable nozzle provided in the centrifugal supercharger or a wastegate valve is fully open such that the energy of the exhaust gas is prevented from being used for increasing the rotational speed of the turbine." ***Applicant's specification at page 3, lines 5-8***. With this

potential solution to the problems with the prior art, "an amount of energy of the exhaust gas which is used for increasing the rotational speed of the turbine, decreases. As a result, the intake air amount becomes smaller than that before the variable nozzle or wastegate valve is fully opened, which may cause an increase in amount of smoke." ***Applicant's specification at page 3, lines 12-15***. ***None of the applied references recognize this problem or propose a solution to the problem***.

The examiner respectfully disagrees since

First of all, applicant's arguments are based on the **Specification** of the present invention *(emphasis added)*.

Secondly, it is noted that the features upon which applicant relies (i.e., **the temperature of the exhaust gas flowing from the NOx catalyst cannot be increased sufficiently; as a result, "a pumping loss of the internal combustion engine increases, which causes deterioration of fuel efficiency; *recognizing this problem or proposing a solution to the problem* etc...**) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Additionally, the combination of Saito with either Kobayashi et al. , JP-A-2003-278536, or Nagae, JP-A-2002-070536 reads all the limitations as being claimed.

For theses reasons, the rejections of claims 10-12, 14-16 and 18 should be sustained.

c. Rejection of claims 13 and 17 under 35 U.S.C. §103(a) over Saito in view of either Kobayashi or Nagae, and Kawamoto, JP-A-2003-120353.

In response to applicant's arguments on pages 10-11, applicant argues that Kawamoto discloses "after-injection" being adjusted based on the boost pressure. However, Kawamoto fails to discloses the turbine rotation controller decreases the amount of energy of the exhaust gas

The examiner respectfully disagrees.

Paragraphs [0026] and [0030] of Kawamoto discloses:

> [0026] ***Opening of the exhaust air bypass valve 16 is considered as full open, and the by-pass rate of turbine 5T is made to increase at*** step 4. Thereby, the temperature fall of the exhaust air which can control heat dissipation of exhaust air and is led to a catalyst to turbine 5T is controlled. It is referred to as post-injection-quantity Qp=0 at step 5. Post-injection of long duration is forbidden at the time of catalyst warming up, and fuel consumption aggravation and exhaust air performance degradation are controlled.
>
> [0030] At step 8, it judges whether ***the detected charge pressure Boost is less than [predetermined value B0]***, and in the case of below predetermined value B0, it is step 9, and it sets up the post-injection quantity 0P based on the map of drawing 5. Here, the post-injection quantity Qp is set as such a large value that charge pressure Boost is low. That is, by making [many] the post-injection quantity Qp and fully raising an exhaust-gas temperature, the enthalpy of a turbine inlet port can be enlarged, the exhaust air energy-recovery effectiveness in a turbine can be raised, the inhalation-of-air work of compression by the compressor can be made to be able to increase, and charge pressure can be promptly raised, so that charge pressure Boost is low. Here, when it has progressed from step 3, the predetermined value B0 may be set up according to a

> service condition (acceleration demand). That is, when Acc-A0 (or delta Acc-delta A0) is large, you may make it set up the predetermined value B0 greatly. Moreover, based on an inhalation air content, you may judge instead of charge pressure. Namely, it progresses to step 9 at the time of the inhalation air content Qac < desired value Qac0.

These Paragraphs means that as the bypass valve 16 is fully opened the amount of energy of the exhaust gas through the turbine will be decreases.

Additionally, there is no controller (ECU) of the whole system in order to receive signals from detecting intake air amount or intake air pressure as inputs, and send signals as outputs to the turbine rotation controller for decreasing the amount of energy of exhaust gas. Therefore, the turbine rotation controller in the instant application does not perform its function as decreasing the amount of energy of exhaust gas though the amount and pressure of the air intake is to be sensed or detected.

Accordingly, the rejections of claim 13 and 17 should be sustained.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THAI BA TRIEU whose telephone number is (571)272-4867. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TTB
July 1, 2010

/Thai-Ba Trieu/
Primary Examiner
Art Unit 3748